El Niño Conditions Slowly Building Across the Tropical Pacific

2012-2013 Winter Outlook

By Mike Huston

Recent sea surface temperature (SST) patterns across the tropical Pacific have been trending closer to El Niño conditions with each passing week. Typical atmospheric circulation patterns accompanying the abnormal SST patterns have yet to materialize however and thus forecasters at the Climate Prediction Center (CPC) in Washington D.C. have maintained an El Niño Watch for the 2012-2013 winter season until this final peace of the puzzle takes shape. Numerical models which are used to predict the evolution of sea surface temperatures across the tropical Pacific Ocean have generally favored either a borderline weak event or something more modest developing during the upcoming winter season. Due to the uncertainty inherent with climate forecasts early in the fall forecast cycle, the official forecast calls for the development of a weak El Niño which will likely persist through December, January and February before weakening during the spring months.

During stronger El Niño events, the Pacific storm track normally shifts south into the southern tier states while the Polar storm track dips southeast across eastern Canada leaving the Pacific Northwest drier than normal with a large region of above normal temperatures stretching across most of the northern tier states (see Fig 1). Recent research focusing on the variability of El Niño winters with regard to the strength of the underlying SST conditions indicates that weak El Niño's may very well produce considerably drier conditions across a broader area of the northwest states (see top panel, Fig. 2 below).

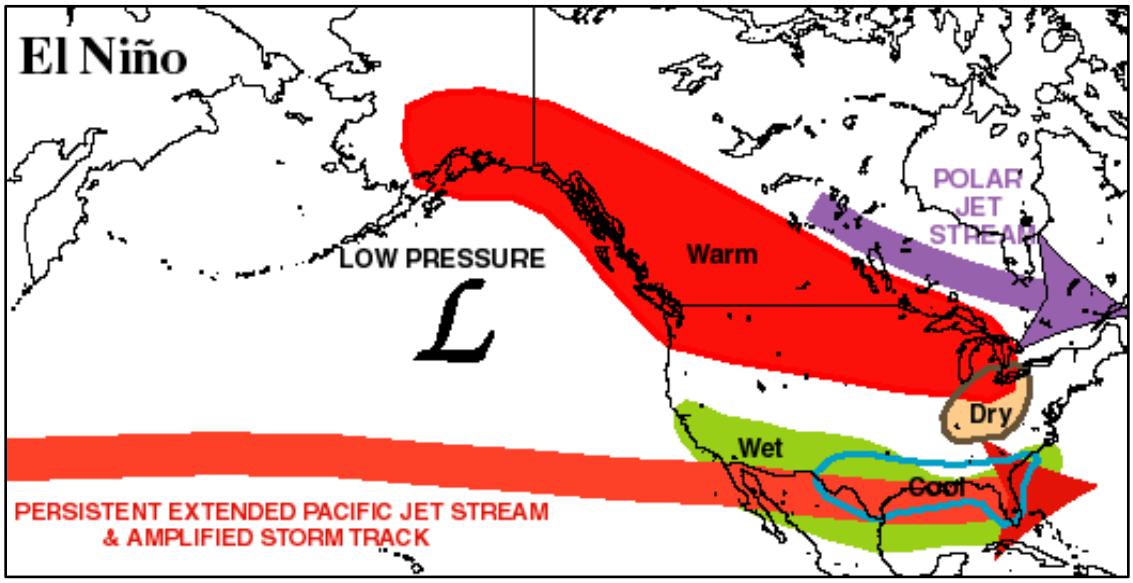

Figure 1. El Niño weather patterns resulting from moderate to strong events.

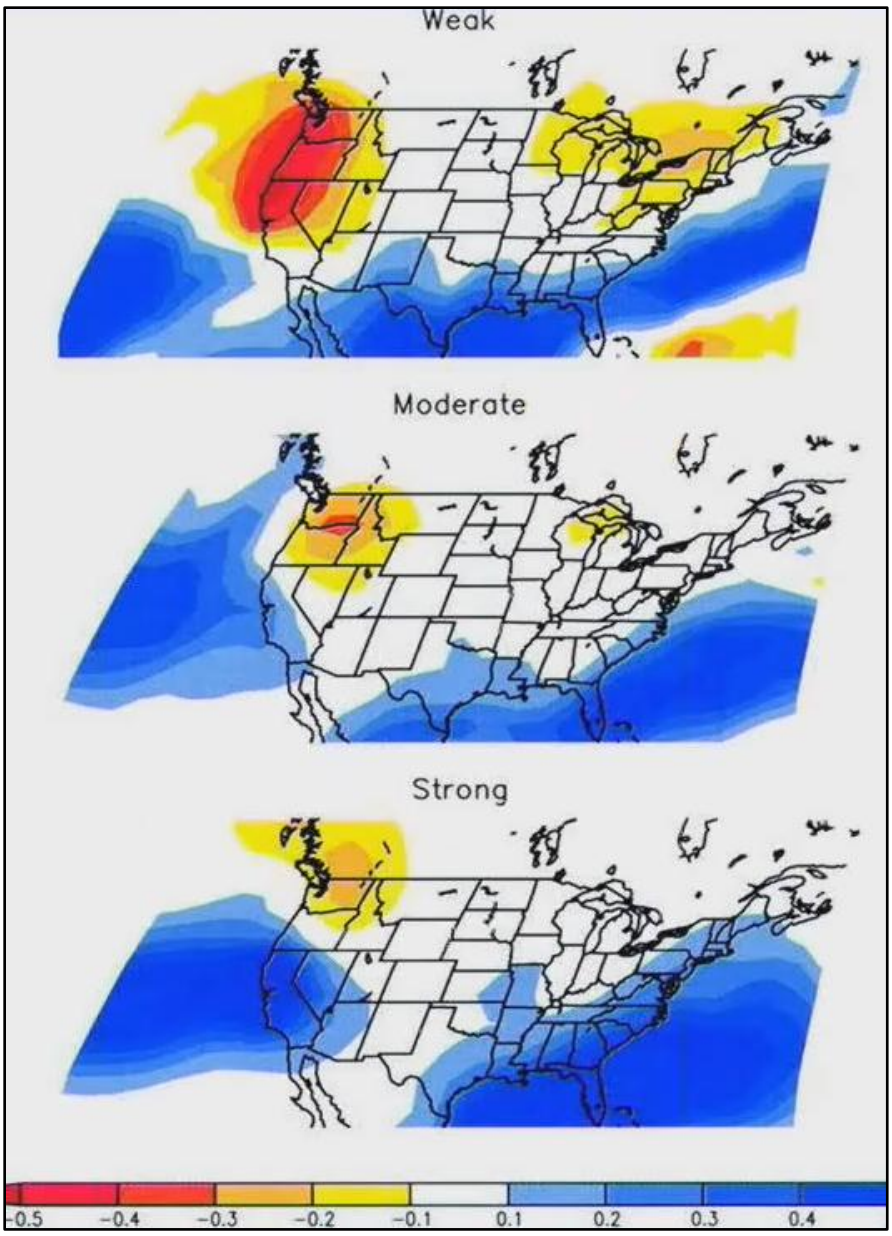

Figure 2. Climate model precipitation anomalies for Dec-Jan-Feb as a result of differing El Niño strengths. Red hues indicate drier than normal conditions. Blue hues indicate wetter than normal conditions.

For now the most prudent action would be to approach the winter armed with the expectations suggestive of a developing El Niño while preparing for the day to day variability that will surely accompany the winter season. Periodic updates will follow over the course of the next few months as conditions evolve, so stay tuned.